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MARTINE PENILLA & GENCARELLA, LLP
710 LAKEWAY DRIVE
SUITE 200
SUNNYVALE, CA 94085

EXAMINER	
DAO, THUY CHAN	

ART UNIT	PAPER NUMBER
2192	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/690,056

Applicant(s)

GOVE, DARRYL J.

Examiner

Thuy Dao

Art Unit

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the amendment filed on April 23, 2007.
2. Claims 1-26 have been examined.

Response to Amendments

3. Per Applicant's request, claims 1, 3-5, 7, 9, 12, 15, 17-26 have been amended.

Response to Arguments

4. The Applicant is thanked for a thorough reply. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections – 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 5-6, 8-10, 12-13, 15-19, 21-22, and 24-26 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 7,140,008 to Chilimbi et al. (art made of record, hereinafter "Chilimbi").

Claim 1:

Chilimbi discloses *a method for obtaining traces of a program, comprising:*

(a) obtaining an original set of instructions which define the program, wherein the original set of instructions does not include an instrumentation instruction (e.g., FIG. 3, original set of instructions 330, col.7: 7-13; col.6: 36-52);

(b) obtaining an instrumented version of the original set of instructions, wherein the instrumented version of the original set of instructions includes each instruction in the original set of instructions and a number of instrumentation instructions defined to generate traces (e.g., col.7: 1-6; col.6: 53-60),

wherein the number of instrumentation instructions are dispersed in a substantially uniform manner throughout the instrumented version of the original set of instructions (e.g., col.3: 56 – col.4: 47; col.5: 44 - col.6: 29);

(c) executing the original set of instructions (e.g., FIG. 3, in the original set of instructions 330, executing A → B, col.6: 61 – col.7: 13);

(d) switching execution from the original set of instructions to the instrumented version of the original set of instructions upon encountering a first trigger condition (e.g., FIG. 3, executing B in 330 → 341 → 371 → A in 320, col.7: 1-25);

(e) executing the instrumented version of the original set of instructions so as to generate traces through execution of one or more of the number of instrumentation instructions (e.g., FIG. 3, executing A in 320 → B also in 320);

(f) switching execution from the instrumented version of the original set of instructions back to the original set of instructions upon encountering a second trigger condition (e.g., FIG. 3, executing B in 320 → 350 → 341 → 361 → A in 330, col.7: 7-44); and

(g) repeating operations (c) through (f) (e.g., col.7: 14-67).

Claim 2:

The rejection of claim 1 is incorporated. Chilimbi also discloses *the switching of execution from the original set of instructions to the instrumented version of the original set of instructions occurs at a location of known state in the original set of instructions (e.g., col.5: 44-53; col.1: 52-58).*

Claim 3:

The rejection of claim 1 is incorporated. Chilimbi also discloses *the first trigger condition is based on an elapsed time of execution, wherein encountering the first*

trigger condition causes the switching of execution from the original set of instructions to the instrumented version of the original set of instructions to occur at a next location of known state in the original set of instructions (e.g., col.4: 30-47).

Claim 5:

The rejection of claim 1 is incorporated. Chilimbi also discloses *the second trigger condition is based on an elapsed time of execution, wherein encountering the second trigger condition causes the switching of execution from the instrumented version of the original set of instructions back to the original set of instructions to occur at a next location of known state in the instrumented version of the original set of instructions (e.g., col.7: 33-44).*

Claim 6:

The rejection of claim 5 is incorporated. Chilimbi also discloses *the next location of known state in the instrumented version of the original set of instructions corresponds to an instruction common to both the instrumented version of the original set of instructions and the original set of instructions (e.g., FIG. 4, statement 440, col.7: 33-49).*

Claim 8:

The rejection of claim 1 is incorporated. Chilimbi also discloses *execution of the instrumented version of the original set of instructions is performed by an emulator (e.g., FIG. 2, col.6: 32-52).*

Claim 9:

Chilimbi also a *method for obtaining traces of a program, comprising:*

- (a) executing an original code which defines the program, wherein the original code does not include an instrumentation instruction (e.g., col.6: 61 – col.7: 13);*
- (b) switching execution from the original code to an instrumented code~ wherein the instrumented code includes each instruction present in the original code*

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and a number of instrumentation instructions dispersed in a substantially uniform manner throughout the instrumented code, wherein the number of instrumentation instructions are defined to generate traces (e.g., col.7: 1-25; col.3: 56 – col.4: 47; col.5: 44 – col.6: 29);

(c) executing the instrumented code so as to generate traces through execution of one or more of the instrumentation instructions (e.g., FIG. 3, executing A in 320 → B also in 320, col.7: 14-67);

(d) switching execution from the instrumented code back to the original code (e.g., col.7: 7-44); and

(e) repeating operations (a) through (d) (e.g., col.7: 14-67).

Claims 10 and 12-13:

Claims 10 and 12-13 recite the same limitations as those of claims 3 and 5-6, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 10 and 12-13.

Claim 15:

The rejection of claim 9 is incorporated. Chilimbi also discloses *both switching execution from the original code to the instrumented code and switching execution from the instrumented code back to the original code are performed using return addresses during processing of function calls (e.g., FIG. 4, statement "goto", col.7: 14-32).*

Claim 16:

The rejection of claim 9 is incorporated. Chilimbi also discloses *defining a map of instruction addresses, the map of instruction addresses identifying correspondences between instruction addresses in the original code and instruction addresses in the instrumented code (e.g., col.9: 3-27).*

Claim 17:

The rejection of claim 16 is incorporated. Chilimbi also discloses *both switching execution from the original code to the instrumented code and switching execution from the instrumented code back to the original code are performed using the map of instruction addresses* (e.g., col.9: 11-63).

Claims 18-19 and 21-22:

Claims 18-19 and 21-22 recite the same limitations as those of claims 1-3 and 5-6, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 18-19 and 21-22.

Claim 24:

The rejection of claim 18 is incorporated. Chilimbi also discloses *the program instructions for switching execution from the original code to the instrumented code and the program instructions for switching execution from the instrumented code back to the original code are defined to use return addresses during processing of function calls to effect the switching* (e.g., FIG. 4, col.7: 14-32).

Claim 25:

The rejection of claim 18 is incorporated. Chilimbi also discloses *program instructions for defining a map of instruction addresses, the map of instruction addresses identifying correspondences between instruction addresses in the original code and instruction addresses in the instrumented code* (e.g., col.9: 3-27).

Claim 26:

The rejection of claim 25 is incorporated. Chilimbi also discloses *the program instructions for switching execution from the original code to the instrumented code and the program instructions for switching execution from the instrumented code back to the original code are defined to use the map of instruction addresses to effect the switching* (e.g., col.9: 11-63).

Claim Rejections – 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4, 7, 11, 14, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chilimbi in view of US Patent Publication No. 2004/0154010 A1 to Marcuello et al. (art made of record, hereinafter "Marcuello").

Claim 4:

The rejection of claim 3 is incorporated. Chilimbi does not explicitly disclose *the first trigger condition is defined such that execution of the original set of instructions accounts for more than about 90 percent of the elapsed time of execution.*

However, in an analogous art, Marcuello further discloses *the first trigger condition is defined such that execution of the original set of instructions accounts for more than about 90 percent of the elapsed time of execution (e.g., [0024-0025]).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Marcuello 's teaching into Chilimbi's teaching. One would have been motivated to do so to predefine said threshold (90 percent of the elapsed time) for selected factors such as application requirements and/or machine resource availability.

Claim 7:

The rejection of claim 5 is incorporated. Marcuello further discloses *the second trigger condition is defined such that execution of the instrumented version of the original set of instructions accounts for less than about 10 percent of the elapsed time of execution (e.g., [0031]).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Marcuello 's teaching into Chilimbi's teaching. One would have been motivated to do so to as set forth above.

Claims 11 and 14:

Claims 11 and 14 recite the same limitations as those of claims 4 and 7, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 11 and 14.

Claims 20 and 23:

Claims 20 and 23 recite the same limitations as those of claims 4 and 7, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 20 and 23.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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10. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be reached on Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. Dao



TUAN DAM
SUPERVISORY PATENT EXAMINER